

THE No.1 SCALE AIRCRAFT REFERENCE MAGAZINE

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Illustrating the latest overall shade of grey used on US Navy Orions is this P-3C serving with VP-30 'Pros'. In recent years a limited number of P-3s have been allowed to wear full colour unit markings on their tails

Flight tests for this modification were conducted on P-3B (BuNo.152740) and the capability was retrofitted to all P-3Bs and most P-3As.

P-3Bs were exported to New Zealand and Norway (which ordered five aircraft each) and to Australia, which acquired ten. The US Navy examples went through a continual improvement programme during the mid-1970s carried out by Lear Siegler, in order to enhance acoustic processing and navigational equipment. New Zealand's five P-3Bs also received a limited upgrade by Boeing Aerospace.

By the early 1980s surviving P-3A/Bs serving with the Naval Air Reserve units underwent further upgrades with the TACTical NAVigation MODernisation (TACNAVMOD), a programme which gave the aircraft a new digital processing system (AQA-5 DIFAR), as employed by the P-3C. These aircraft became known as Block I machines. Further P-3Bs were upgraded to TACNAVMOD Block II status (dubbed 'Superbees') with further improved systems, infra-red turret and Harpoon missile capability. Yet another programme in the early 1990s produced a few TACNAVMOD Block III 'Killerbees', with ALR-66 ESM, satellite communications, and colour weather radar.

The P-3C was to represent a quantum leap in overall ASW capabilities and was to make the Orion the most advanced maritime patrol aircraft to fly. Termed the A-NEW ASW Avionics Systems Program, the P-3C designation integrated all of the aircraft's sophisticated sensors through a single computer processor. The P-3C development took place over a number of phases, the first involving a proof-of-concept testing of the integrated ASW/computer system in a YP-3A (BuNo.148276). By this stage the Orion was utilising a digital flight computer left over from NASA's Apollo programme.

Having completed successful tests with YP-3A, P-3 BuNo.148883 was converted to a flying test-bed, this time utilising a central processor that had been designed for the developing A-NEW programme, the UNIVAC CP-901/ASQ-114 digital computer. The advances of such a system were enormous. Operators were now continually updated with the most recent tactical and mission data, and the pilots were provided with computer-generated 'fly-to' points. Other tasks were under the control of the CP-901, including the release of weapons and sonobouy receiver control. P-3B (BuNo.153443) the 240th airframe built, was diverted from the production line and was to become the prototype YP-3C.

While the changes to the internal equipment could fill numerous text books, externally the P-3Cs could be distinguished by a battery of externally loaded sonobouy launchers, visible beneath the rear fuselage. The core of the A-NEW system was the Sperry Univac ASQ-114 digital computer and the AYA-8 processing and display system. The central computers were fed by a range of new sensors: the APS-115 radar, new Litton inertial platforms, new ESM and Doppler radar.

Since entering US Navy service P-3Cs have been through four major Update programmes (I, II, II.5 and III) to incorporate new technology, improve the system's effectiveness and keep pace with the perceived submarine threat, which at times has verged on paranoia.

Update I

The first 'Update' programmes began just a few months after P-3Cs entered service production in 1968. However, these advances were not capable of being integrated into the P-3C due to the limitations imposed by the Orion's computer systems. Update I sought to remedy this by adding a fourth logic unit. Such an installation increased the computer memory seven-fold, and accommodated a new operational programme that aided in acoustic analysis, ESM signal sorting, and greater detection and refinement of signals of the new ARN-99(V)-1 OMEGA navigation system. Further Update I improvements included adding an ASA-66 tactical display to two operator's stations.

Testing of the Update I system took place on Orion BuNo.158928 during the early part of 1974 and many of the upgrades were incorporated into P-3C production starting with aircraft BuNo.159503. Update I Orions totalled 31. A number of Update I improvements were retrofitted to earlier P-3A and Bs through an assortment of programs. The first unit to receive Update I Orions was VX-1 'Pioneers' at NAS Patuxent River in January 1975.

Update II

By far the most extensive of the updates, Update II commenced in 1976 and saw the addition of the Texas Instruments (now Raytheon) AAS-36 Forward-Looking Infra-Red (FLIR) camera, called the Infra-Red Detection system (IRDS). Housed in a retractable ball-turret and located under the Orion's nose, the IRDS provided for



passive thermal detection of surface vessels and for battle damage assessment, although the IRDS when operating through fog and smoke is only able to show general shapes of the target – no detail. The turret is also liable to fog over due to excessive humidity. Additional modifications included the provision for carrying up to six AGM-84 Harpoon air-to-surface anti-ship-missiles. This secondary anti-surface capability was intended as a complement to the Orion's ASW mission, enabling it to engage the submarine outside the perceived target area, so eliminating the chances of the P-3 being detected. Processing enhancements also occurred in Update II, with the introduction of the Cubic Corporation's ARS-3 Sonobouy Receiver Systems (SRS), and a new 28-track acoustic tape recording system, the AQH-4(V)2. The AQA-7 only allows for 16 buoys to be monitored at one time – and then only in LOFAR mode. The SRS increased that number to 32 buoys.

Thirty-seven Orions were completed to Update II configuration, with VX-1 and Naval Air Test Centre's (NATC) Anti-Submarine Aircraft Test Directorate (part of the Naval Technical evaluation) receiving their models in September 1977. Today only a few Update IIs remain in service with US Navy reserve squadrons.

Update II.5

The third upgrade for the Orion community focused on improving the reliability and maintainability of the P-3's navigation and communications suites. This upgrade, as the 'II.5' implies, was not one that was officially planned, and represented more of an acknowledgement that the Orion's original avionics systems were now obsolete. Entering squadron service in 1981, only 24 Update II.5 models were built, but they added many navigational upgrades, some of which were a Litton LTN-72 INS, and an improved Doppler radar. Communications were also brought up to current standard with the installation of a AN/AR-197 VHF radio. The addition of the ARC-197 brought crews a better radio, but they were hindered by having to carry a separate portable means of communicating with ships. Acoustic sensors were brought up to date, wing pylons were standardised and an improved fuel tank venting system was adopted. The TACCO was given an auxiliary IRDS display. VP-11 received their first P-3C Update II.5 aircraft in May 1981. The type remains in service with US Naval reserve squadrons.

Update III

Beginning in the late 1970s, Update III resulted in the Orion gaining the position of being described as the most effective

Designed as a flexible meteorological/oceanographic research platform, the WP-3D is based on the P-3C airframe, but with a strengthened floor to accept large amounts of 'roll-on, roll-off' mission equipment. The two WP-3Ds are regularly used as 'hurricane hunters'



A low-level pass in front of Moffet NAS's massive airship hangars is performed by this P-3C of VP-31 'Black Knights'. VP-31 was the West Coast Orion, Fleet Readiness Squadron (FRS)



Electra

by Jim Grant

Prior to the introduction of the Lockheed L-10 Electra and the Douglas DC-2 British airlines had had an unchallenged domination on Australian routes. This had been brought about not by their technical excellence but by an Australian Government embargo, supporting an Empire First policy, on the importation of airliners from the United States of America, and by a clause in air mail contracts specifying the exclusive use of British manufactured aircraft, creating an effective closed shop. Ironically it was the arrival in Australia of the latest British airliner, the de Havilland D.H.86, which was to bring about an almost total reversal of the status quo. Two airlines, Qantas Empire Airways and Holyman's Airways, introduced the D.H.86 onto their routes in 1934-35. However, the loss of Holyman's VH-URN 'Miss Hobart' on October 19th, 1934 with all 12 people on board only 18 days after the beginning of the Launceston-Melbourne service, and the crash of Qantas' VH-USG on November 19th, 1934, during the last leg of its delivery flight from the United Kingdom, badly shook both the operator's and the public's confidence in the type. Pressure, brought mainly by Holyman's Airways who lost a further two aircraft, on the Commonwealth Government achieved the lifting of the ban on United States aircraft and allowed the airline to place an order for a Douglas DC-2.

Correctly interpreting the mood of the times the Melbourne

firm of Brown and Dureau Ltd went ahead and obtained the Australian rights for Lockheed and Consolidated Vultee aircraft and for Pratt and Whitney engines, a move which was to benefit them greatly when Hudsons and Catalinas were subsequently purchased in considerable numbers.

Their promotion of the L-10 resulted in eight new aircraft being delivered to Australian operators between August 1936 and December 1938. Indirectly resulting from the importation of the earlier aircraft was the acquisition of a 9th aircraft, by Qantas Empire Airways, in July 1941. While not a significant number in itself these aircraft represented 50% of all modern airliners in Australia.

The L-10 Electra resulted from a 1932 survey which indicated that twin-engined aircraft were preferred by both airline operators and passengers. Lockheed therefore abandoned their proposed ten-seat single-engine design and produced a twin-finned, twin-engined aircraft instead. The prototype made its first flight, from Burbank Airfield, on February 23rd, 1934 and 148 aircraft had been produced by July 1941 when production ceased. The sub-types imported into Australia were the L-10A powered by the 450hp Pratt & Whitney Wasp Juniors and the L-10B which had 440hp Wright R-975-E3 Whirlwinds. Ansett Airlines chose the latter engines as they could operate satisfactorily on 80 octane fuel and were more suitable for the short sectors the aircraft were intended

VH-UXH Guinea Airways first Electra in flight over Adelaide shortly after being delivered to the airline in August 1936. These ten-seat airliners introduced a new standard of comfort and safety and were a potent competitor, on Australian routes, to the Douglas DC-2



The end of VH-ABW. Damaged beyond repair in a mangrove swamp after failing to take-off from Broome on June 17th, 1946. With the ready availability of surplus C-47s no attempt was made to rebuild this aircraft

MacRobertson-Miller Aviation Company's VH-ABW. This aircraft, along with VH-ABV, replaced de Havilland D.H.84 and D.H.86 aircraft on the Perth-Darwin air mail service, halving the times taken by the previous aircraft on the 2,000 mile route

for. In addition this sub-type could carry an additional 200kg of payload.

The Whirlwind-powered model B is remembered in Australia and New Zealand as a very noisy aircraft 'a formation of Harvards' was one description. The problem was attributed to the propeller fitted to this engine.

The original eight comprised three aircraft for Guinea Airways VH-UXH, -UXI and -AAU, constructors numbers 1060, 1105 and 1108 respectively and three for Ansett Airways VH-UZN, -UZO and -UZP, c/ns 1106, 1107 and 1109. The last two, for the MacRobertson-Miller Aviation Company, VH-ABV and -ABW c/ns 1130 and 1131. Guinea Airways and MacRobertson-Miller ordered Model As, Ansett ordered the Model B.

The first aircraft c/n 1060 was completed on March 3rd, 1936 and arrived in Adelaide, South Australia, on board the SS 'Hauraki' on June 30th, 1936. Also on board was Vernon Dorrell, a representative of the Lockheed company, who supervised the reassembly of the aircraft and then carried out the necessary test flights on August 5th. The aircraft was then handed over to Guinea Airways Ltd, registered VH-UXH on August 20th, 1936 and named 'C J Levien' after the airline's founder.

A number of demonstration flights were carried out before the aircraft departed for service in New Guinea. These included a record breaking 2 hour 26 minute flight from Melbourne to Sydney on September 5th, 1936 at an average of 190mph. It

arrived at Wau on September 19th, 1936 and commenced services throughout the territory. Although much appreciated by passengers used to travelling in specimens of aeronautical archaeology it proved totally unsuitable for the type of cargo carried by the airline and was uneconomical over the short routes on the island. In addition its inability to fly on one engine for any distance made it particularly dangerous in a mountainous country in which large patches of flat, cleared ground are scarce. A number of charter flights to and from Australia showed that it was very well suited to long distance routes and was transferred back to Adelaide to operate a service to Darwin via Alice Springs which started in February 1937.

This service was initially poorly supported, with an average of only three passengers per flight, but the company persevered and with the granting of a mail subsidy in July 1938 it was became possible to run the service economically. VH-UXH was joined by VH-UXI 'Moresby' in July 1937 and by the third aircraft VH-AAU 'Salamaua' in October. With three aircraft available the initial weekly service to Darwin was doubled and with the spare capacity the airline operated a short lived Adelaide-Sydney service with stops at Mildura, Hay and Cootamundra. The airline lost its first Electra on December 18th, 1939 after VH-UXI made a forced landing 20 miles (36km) south of Darwin when the starboard engine failed. The aircraft was put down successfully and all on board got out before it caught fire and was burnt out.

VH-AAU was chartered by Qantas and flown from Darwin to Portuguese Timor on July 22nd, 1939 with an Australian Government delegation to negotiate with Portuguese officials for the right to operate a fortnightly service from Darwin to the capital Dili. The Japanese had recently been negotiating for landing rights and it was thought necessary to maintain an Australian presence on the island.

Guinea Airways aircraft were absorbed into the war effort as and when required. A Special Transport Flight was formed, from 17 military and 11 civilian aircraft which included Electras VH-UXH, -AAU and -AEC (Qantas) at Port Moresby in December 1942 to support operations against the Japanese on the south eastern end of the island. By 1943 the surviving Electras, supplemented by a Lockheed L-14, were operating six services a week over the Adelaide-Darwin route carrying service personnel and freight.





With the end of the war Guinea Airways used VH-UXH and -AAU on their Darwin and South Australian routes but these were soon replaced by war surplus C-47s and were sold to Union Airways of New Zealand Ltd on August 28th, 1946. VH-UXH became ZK-ALH and VH-AAU ZK-ALI on September 26th, 1946 and October 5th, 1946 respectively. At the time of sale -UXH had accumulated 16,711 hours flying time. Both aircraft became part of the New Zealand National Airways Corporation when Union Airways amalgamated with that airline. ZK-ALH was withdrawn from service on July 29th, 1949 and ZK-ALI three months later on October 19th. They were purchased by Rural Aviation but neither aircraft flew again and were scrapped some years later.

The first two aircraft ordered by Ansett Airways arrived in Melbourne on August 9th, 1937 and were delivered to the airline on October 4th, 1937. These were registered VH-UZN 'Ansirus' and VH-UZO 'Ansertes' and their delivery allowed the airline to commence daily services from Melbourne to Mildura and Broken Hill. With the delivery of the third aircraft, VH-UZP 'Ansalanta' on October 4th the airline started a Melbourne to Sydney service followed in July 1938 by a

Sydney-Adelaide service. Most of the airline's routes were initially operated on an unsubsidised daily basis but in November 1938 the government recognised their value and paid a small subsidy to ensure their continuing operation.

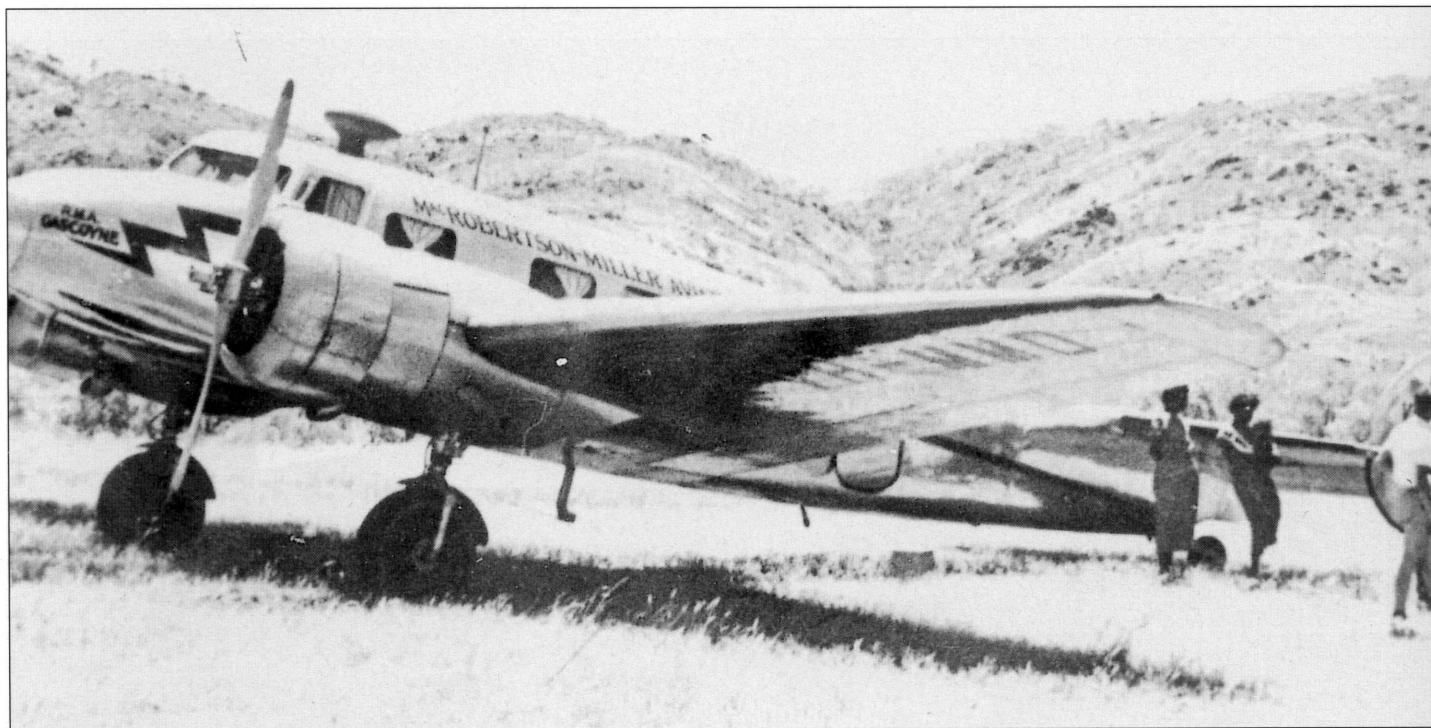
An innovative money raiser commenced in February 1938 when the airline offered evening flights over Melbourne for the equivalent of \$2.50 per person for 15 minutes. Though financially successful these flights provoked complaints on the grounds that people could not get to sleep for the noise they caused. This seems to have been the first recorded complaint of the noise that the L-10B produced.

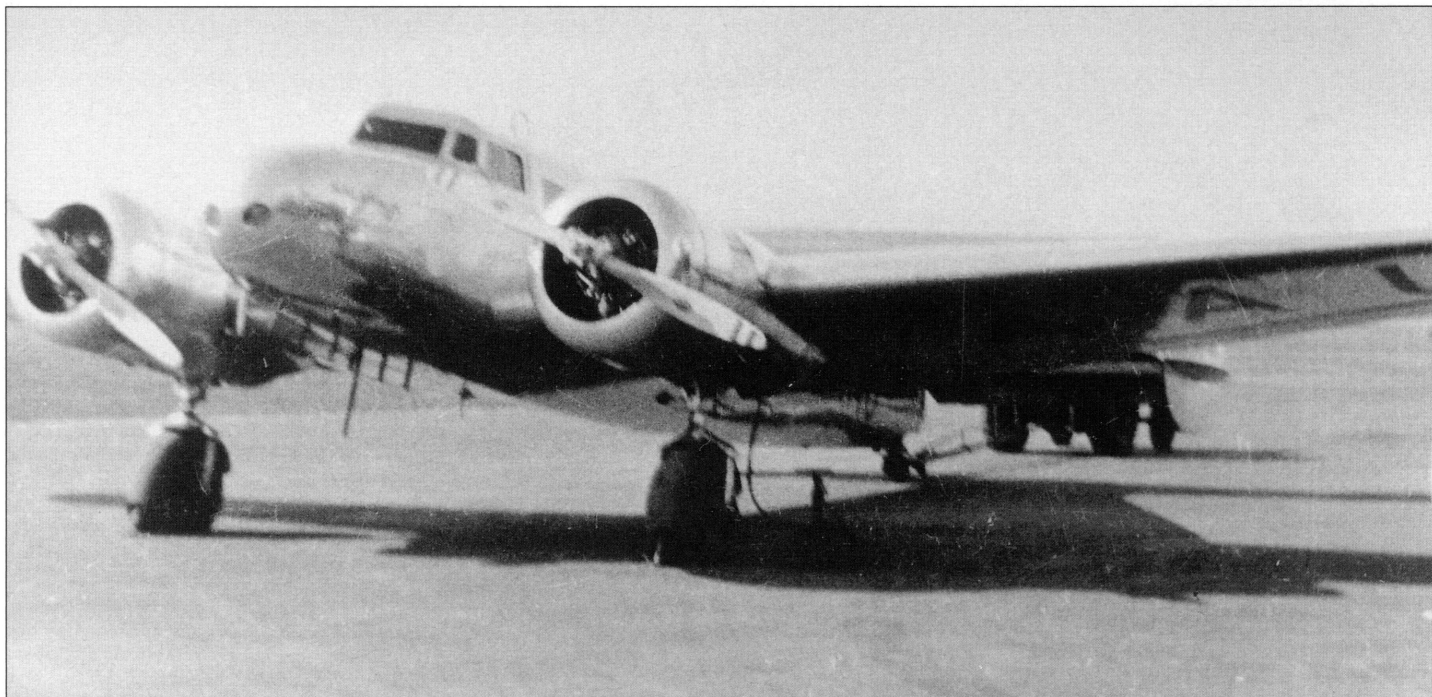
Ansett suffered a disastrous fire in their Essendon hangar on February 28th, 1939 in which Electra VH-UZN and three other aircraft were destroyed. The fire caused \$80,000 worth of damage.

Both of Ansett's remaining aircraft participated in the evacuation of Darwin and Broome, following the Japanese attack on February 19th and March 3rd, 1942 respectively. In June 1942 Ansett leased the two remaining Electras, VH-UZO and -UZP to the USAAF and the aircraft were flying up to 20 hours a day on courier and light freight duties. The Electras

VH-ABV following a forced landing on Napier Downs Station in January 1942. Passengers were flown out, and spares brought in, by MMA's Cessna C-37 VH-UZU. The Electra was repaired and returned to service on February 17th

VH-MMD, formerly VH-ABV which was re-registered after the war in the 'VH-MM' series adopted by MacRobertson Miller Aviation. This aircraft is believed to still be in existence in the United States having passed through the hands of a number of owners since it left Australia





Guinea Airways' third aircraft VH-AAU. This survived WWII service, including frontline support flights in New Guinea, to be sold to Union Airways (New Zealand) in August 1946

were camouflaged about this time but by the middle of 1943 had reverted to bare metal. VH-UXP made an emergency landing on Narrabeen Beach near Sydney in November 1944 while on a United States Army flight. It suffered only minor damage on landing, however the tailwheel was pulled out by the towing vehicle. Despite this it was soon flying again.

Ansett Airlines recommenced civilian services on February 5th, 1945. VH-UZP continued in operation until it crashed on May 16th, 1946 not long after taking off from Parafield Aerodrome, South Australia. All on board survived due, it was said, to the rearward-facing passenger seats, despite the fact that the aircraft disintegrated when it hit the ground.

At the end of 1946 it was decided that VH-UZO was beyond economic operation or repair and was pushed out to the graveyard at Bankstown Airport. On January 5th, 1951 it was purchased 'as is' by Fawcett Aviation who restored it to airworthy condition and put it into service. The undercarriage collapsed on March 5th, 1951 but it was back in operation on the 11th of the same month. South Coast Airways bought it on December 1st, 1951 and the aircraft was used on their Sydney-Cowra route until December 5th, 1955 when ownership passed to Christys Motors. This company used it as a corporate transport until October 15th, 1958 when it was sold to Western Air Navigation at Charleville, Queensland and registered

VH-WAO. C.H. Degotardi acquired it as VH-CHD in 1960 then finally sold to Marshall Airways as VH-ASM. This aircraft is the last one of the type in Australia.

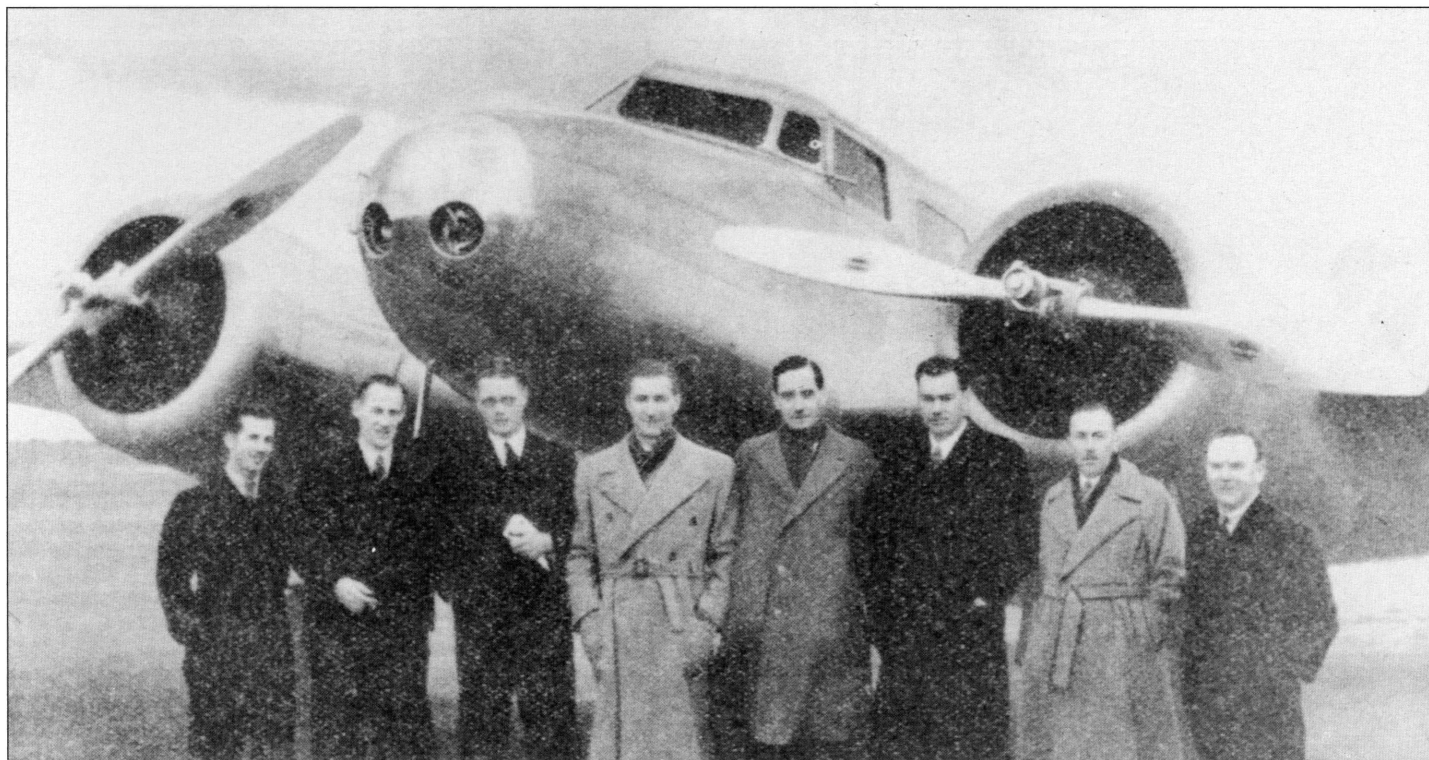
On August 4th, 1938 MacRobertson-Miller Aviation Coy. announced an order for two Electras and both aircraft were delivered by the SS 'Tolken' to Adelaide on December 5th and were assembled by Guinea Airways. VH-ABV 'Gascoyne' was scheduled to fly to Perth on December 17th but while taxiing out the starboard under carriage leg collapsed damaging the propeller and cowling. VH-ABW 'Kimberly' made an uneventful delivery flight to Perth on December 21st and -ABV followed on January 5th, 1939.

On January 12th, 1939 they commenced operations on the Perth to Darwin route covering the 2200 miles in under two days and halving the time previously taken by de Havilland Dragons. On the first sector, the 245 miles from Perth to Geraldton, the Electra set a new record time of 1 hour 20 minutes.

The airline almost lost VH-ABV on January 16th, 1942 when the starboard engine failed and the aircraft had to make a wheels up landing in a swampy clearing on Napier Downs Station. No one was hurt and a salvage crew was flown in, and the passengers were flown out in VH-UZU, the company's Cessna C-37. The aircraft was jacked clear of the mud and the undercarriage lowered. The starboard engine was stripped to its

VH-AEC, formerly NC14947, acquired by Qantas to help maintain services after a number of their aircraft had been requisitioned by the RAAF. It was flown intensively in Queensland and the Northern Territory during WWII. This was the only secondhand aircraft to be imported





components and flown out as the parts for the replacement engine were flown in. Five weeks later 27 half-wild donkeys were harnessed to the aircraft and dragged it to a 250 yard flat, drier stretch of ground. It took a full day and some of the most colourful language in the world to encourage the donkeys to work but by the end of the day the Electra had been hauled across a creek to the take-off area. Every unnecessary piece of equipment was removed from the aircraft, fuel reduced to the minimum and excess water literally sponged off the strip and Jimmy Woods, one of MMA's most experienced pilots, got the aircraft away on February 17th at the first attempt.

As a result of hard work in appalling conditions, almost incessant monsoonal rain and harassed by swarms of mosquitoes, the aircraft was able to rejoin a much reduced fleet of only two aircraft operating the west coast service.

VH-ABW had a narrow escape on March 3rd, 1942 when it landed at Broome not long after the airfield and town had been attacked by Japanese aircraft which had destroyed all the aircraft on the field and the flying boats in the harbour.

By the middle of 1942 the Electras had been camouflaged light earth and green on the upper surfaces and light blue on the undersides with white registration letters and aircraft name. On the outer side of the fins were RAAF style fin flashes.

VH-ABW was compulsorily transferred to the Sydney-Hobart route in December 1942 for a number of months after Ansett Airlines abandoned the service when it chartered its Electras to the United States forces. ABW was damaged at Port Hedland on March 24th, 1943 when it struck a gravel patch on the runway and was out of service for five months.

Due to the possibility of encountering Japanese aircraft at the northern end of the route M.M.A. ceased operating a fixed schedule during the war years, a safety measure which was to cause many problems for the inhabitants of the North West. VH-ABW was written off on June 17th, 1946 when it failed to take off from Broome Airport and crashed into the mangrove swamp at the end of the runway. Its sister aircraft was re-registered VH-MMD on October 31st, 1948 and continued to operate the cattle station and Flying Doctor Service of Australia services. MMA contracted with the F.D.S. of A. to operate 7000 miles per annum at a cost of 2 shillings per mile flown and 1 shilling and 2 pence per mile not flown. VH-MMD made a

forced landing at Napier Downs Station on June 26th, 1949 but was flown out without the drama of the 1942 episode. The aircraft was sold to an American company, as N4886V, on April 13th, 1954. 11 years later, and registered N19HL, it was donated to the Valiant Air Command. This aircraft is believed to be still in existence.

One final Electra was imported, in 1941, for service with Qantas Empire Airways NC14947 c/n 1034 which was registered VH-AEC 'Inlander' and was owned and operated by QEA between June 8th, 1941 and February 12th, 1948. On this latter date the starboard engine failed and the aircraft was forced to make an emergency landing near Condamine in which it was damaged beyond repair.

Following the commencement of the war in the Pacific this aircraft operated exclusively under United States military control. It performed well in arduous conditions and flew almost non-stop for two and a half years.

Truly the progenitor of a great line of multi-engined, multi-finned transport and bombing aircraft leading to the L1049, all of which gave Australia extremely good service. **MAM**

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VH-UZN, an L-10B of Ansett Airways at the end of its acceptance trials. Reg Ansett is second from the left, A.E. Shoreland Senior Aircraft Inspector, Civil Aviation Branch on the right. The other men were representatives of Lockheed or Brown and Dureau, their Australian agents

VH-UXH c/n 1060 Cert of Registration 603 issued 20/8/36

VH-UXI c/n 1105 Cert of Registration 656 issued 12/8/37

VH-UZN c/n 1106 Cert of Registration 657 issued 3/9/37

VH-UZO c/n 1107 Cert of Registration 658 issued 26/8/37

VH-AAU c/n 1108 Cert of Registration 667 issued 15/10/37

VH-UZP c/n 1109 Cert of Registration 668 issued 21/10/37

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VH-ABW c/n 1131 Cert of Registration 728 issued 21/12/38

VH-AEC c/n 1034 Cert of Registration 781 issued 4/7/41



Kiwi Tri-jets

by John Hale

Heading for home at the conclusion of ATI '92, NZ7271 demonstrates a lively take-off performance

Most air forces throughout the world utilise airliners to perform their less specialised transport tasks; the Royal New Zealand Air Force is no different in this respect, operating a pair of Boeing 727-22QC airliners to fulfil their long-range transport requirements. The Boeing tri-jets are flown by No. 40 Squadron RNZAF, and have given over 20 years of service. Stationed at RNZAF Whenuapai on the North Island, No. 40 Squadron is also equipped with five examples of the ubiquitous Lockheed C-130H Hercules, which have been flown by the Squadron since 1965.

With its mix of Boeing 727 long-range jets and the rugged Hercules, No. 40 Squadron is well equipped to undertake strategic, tactical and VIP transport missions throughout the South Pacific region, and elsewhere across the globe.

United Airlines

New Zealand, in line with many other Air Forces across the globe, chose to turn to the secondhand market to acquire their airliners: No. 40 Squadron's Boeings were acquired in 1981, having formerly been operated by United Airlines in the USA. A third aircraft was also purchased, for use as a spares source to support the two operational aircraft. This non-flying aircraft was the first to arrive in New Zealand; allocated the serial number NZ7273, the aircraft was flown to the RNZAF Base at Woodbourne where it served to familiarise the engineers with the airframe and aircraft systems before being used for spares recovery. The hulk of NZ7273 was eventually scrapped in 1984. The two operational aircraft arrived at Whenuapai on 17th July 1981 after the long ferry flight from San Francisco, prior to receiving the necessary preparation for operational service with the RNZAF.

Both jets, bearing the serial numbers NZ7271 and NZ7272, were fully refurbished and repainted at the Christchurch facility

of Air New Zealand, the country's national airline. Military-standard avionics and additional fuel tanks (enabling stage lengths of 2,415 miles with a load of cargo to be flown) were installed; the aircraft were eventually delivered to No. 40 Squadron in October 1981. The Boeings can be operated in a variety of configurations: either eight freight pallets, 94 fully-equipped troops, 108 or 122 passengers (in either First or 'tourist' class) or up to 52 VIPs can be carried, according to the tasking.

I.C.A.O.

The future of No. 40 Squadron's Boeings is uncertain, as due to the age of the aircraft they are becoming increasingly difficult and expensive to maintain. Their elderly Pratt & Whitney JT8D-7 turbofan engines do not meet the stringent noise limits imposed by the International Civil Aviation Organisation, which restricts their operations from many civil airports. Several studies have taken place during recent years to decide the future of the ageing tri-jets, involving either re-engining or their replacement by more modern aircraft; currently, it is expected that the Boeings may eventually be replaced before the end of 2004. The Hercules of No. 40 Squadron are, of course, even older than the Boeing tri-jets; non-binding options for the purchase of five replacement 'J' models have been secured from Lockheed-Martin, to be exercised between 2005 and 2008.

The distance to New Zealand means that these tri-jets are rarely seen in Great Britain. However, No. 40 Squadron's Boeings may sometimes be seen at air events in this country such as the annual Royal International Air Tattoo at Fairford. In the absence of any formal Royal Review of the Royal Air Force in Her Majesty's Golden Jubilee year, it seems that we shall be denied an opportunity to see these aircraft in 2002. Whether the squadron's aircraft will have cause to journey into the Northern Hemisphere one last time before retirement remains to be seen. **MAN**

(All photographs by the author)



1. Enthusiasts visiting RAF Brize Norton's Photo-Call in July 1994 were treated to the sight of both of No. 40 Squadrons tri-jets. The aircraft had stopped-over at RAF Brize Norton after having transported the New Zealand Defence Force's contribution to United Nations' peace-keeping and monitoring operations in the former Republic of Yugoslavia. Pictured here is NZ7272

2. NZ7271 was seen at the Brize Norton Photo-Call resplendent in a new colour scheme, applied after overhaul



3. The last Kiwi 727 on public display at an airshow in this country was seen at the Air Tournament International held at Boscombe Down during June 1992. NZ7271 appeared in the static park, close to a Boeing 707 of the Royal Australian Air Force





'Under the Southern Stars'

A LAVOCHKIN LA-11

by Jim Grant

The Indonesian Air Force was formed in 1945, and as a result of its origins and varying political convictions, has operated a wide variety of Japanese, British, American, Eastern Bloc and nationally produced aircraft. A sense of pride in its achievements has ensured that examples of a good number of these aircraft have been put aside for preservation and now form the collection of the Tentara Nasional Indonesia-Angkatan Udara (Indonesian Air Force) Museum on the outskirts of Yogyakarta in Central Java.

By the end of the 1950s President Soekarno had established a close association with the Communist Bloc and quantities of Soviet-designed aircraft were received by the Angkatan Udara Republik Indonesia (AURI) as the TNI-AU was then known. Representing this period are MiGs -15UTI, -17, -19 and -21, Tu-16, Mil-4, TS-8 and L.29 Delphine and the pride of the Soviet Bloc collection, the Lavochkin La-11.

Produced in the late 1940s as a long-range version of the La-9 this model had only three cannon in order to allow additional fuel to be carried without increasing the all-up weight of the aircraft. The 40 additional gallons of fuel which

this modification allowed increased the aircraft's range to 1580 miles.

In addition to Soviet service it was delivered to China and North Korea. The aircraft of the latter air force were wiped out in the opening weeks of the war.

It is not widely known that the TNI-AU received at least eleven La-11s in 1958 which were placed in service with Skadron 3. This was the beginning of the re-equipment of the Angkatan Udara with Soviet Bloc equipment. I can only assume that this obsolete fighter was delivered to introduce the Indonesians to Soviet construction and maintenance methods.

This model of the La-11 differs from earlier versions in that it had a smoother cowl which incorporates the lower oil cooler intake.

Painting a model of this aircraft would present no real problem. The aircraft, including the undercarriage doors and wheel hubs, is painted overall in a pleasant shade of low gloss light gray with black framing to the cockpit canopy. The black serial number, F911, on the fuselage is 22 inches high, as is name AURI under the port wing. The stems of the letters and

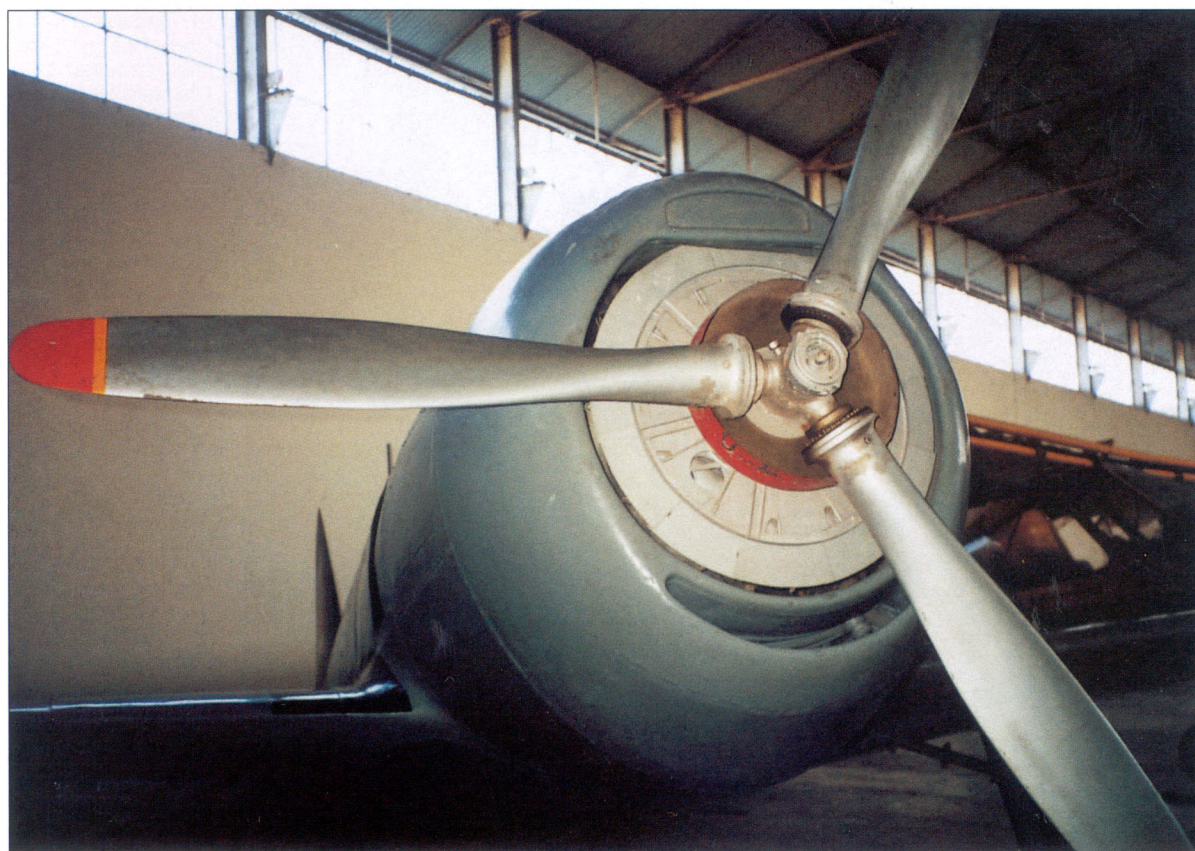


1. Three-quarter rear view of the La-11. The high quality finish of this aircraft is in sharp contrast to the crudity of early Soviet jet fighters

2. Three-quarter front view of the La-11 showing the overall smooth lines of the type

3. Close-up of cowlings and wing walk marking





Close-up of the front cowling and propeller assembly

digits are three inches wide. Fuselage ensign is a 26 inch red-edged white pentagon and on the wing it is 36 inches across. The pentagon appears on the upper surfaces of both wings and the lower surface of the starboard wing.

A black 12 inch wing walk panel follows the curve of the wing root fairing on both sides of the cockpit, and a 12 inch high, 16 inch wide, red over white flash appears on the rudder.

The fronts of the propeller blades are painted silver and the reverse black. The blades are tipped red with a deep yellow

edge. The gun troughs are also red. The radio aerial is silver with a black footing. The instrument panel is black and the rest of the interior is nondescript gray/green.

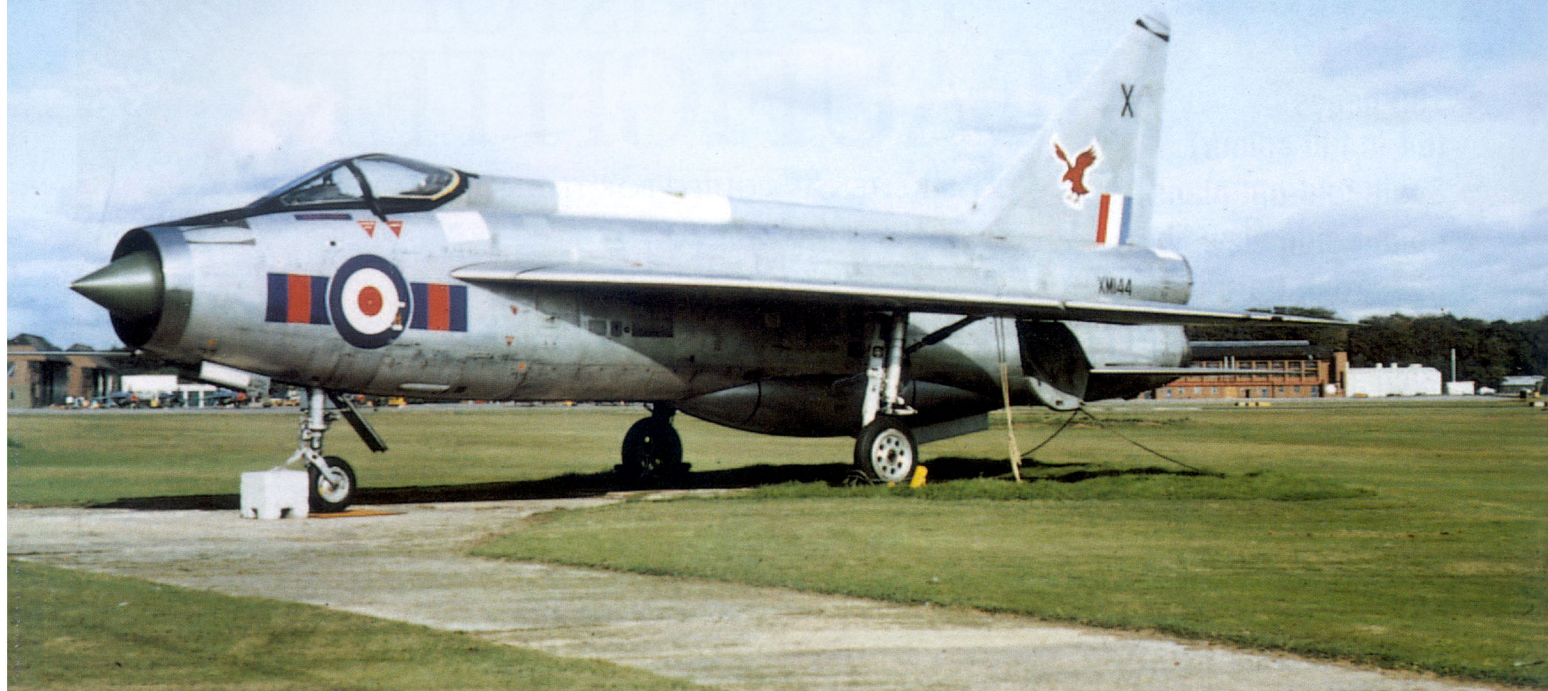
This is a rare aircraft by any standards and would look good alongside earlier models of this series. [MAM](#)

Reference:

Museum Information Handbook by Lt. Kol. Sukawan and visual examination.

Cockpit canopy. This is quite different from the canopy used on the Soviet Air Force La-11





Lightning F.1 XM144 in use as a decoy after operating with No.23 Squadron, TFF

Target Facilities Flight Lightnings

by Michael G. Young

Although the Lightning is best remembered for its service with the first-line fighter squadrons, it also served in several second-line units, amongst them the Target Facilities Flights, that were operational between 1966 and 1973.

The idea for target Lightnings was first formulated in the early 1960s when the first generation Lightnings, the F1 and F1a, entered service with Nos.74, 56 and 111 Squadrons. At that time they were the only truly supersonic aircraft in RAF service, and as the Lightning was intended for the interception of supersonic enemy aircraft, the only aircraft that the Lightnings could practice interceptions of were themselves! By the mid 1960s however the second generation Lightning, the F3, had entered service with Nos.74, 23, 56, and 111 Squadrons and as a result there was a surplus of the earlier F1s and F1as.

Whilst several of the F1s were prematurely scrapped for spares at RAF Lyneham in 1965, a few others were modified and overhauled for service as high speed targets, and subsequently issued to the Fighter Command Trials Unit at Binbrook in February 1966.

The modifications to these Lightnings were relatively minor, involving the partial removal of the armament, removal of the AI radar and the fitting in its place of a Luneberg lens to increase the aircraft's radar reflection. So modified, the aircraft were somewhat lighter than before, and consequently they were

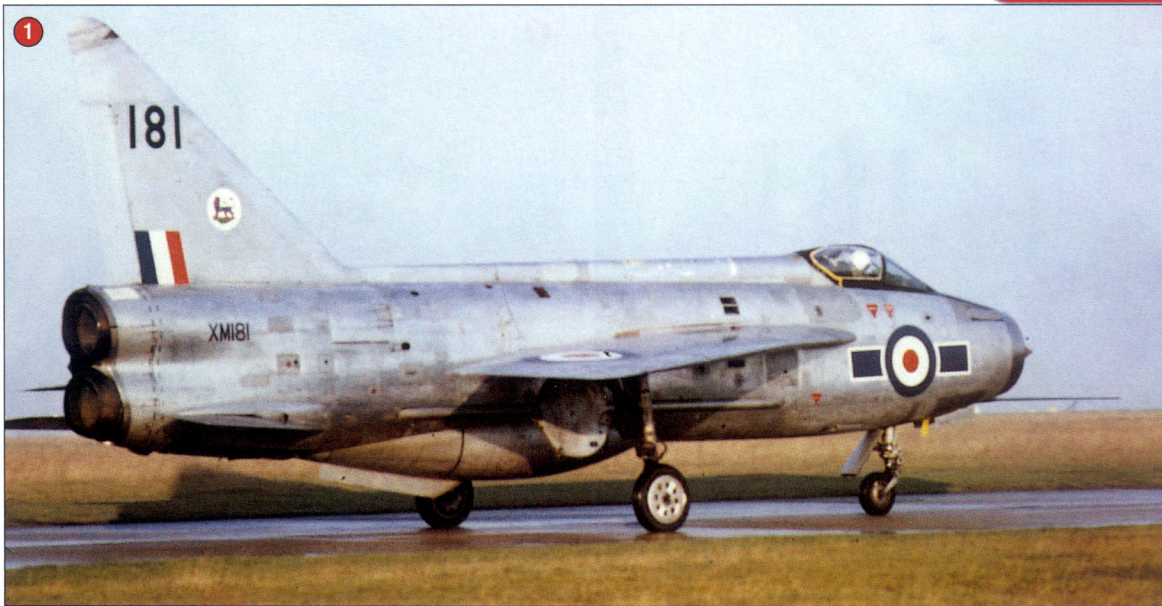
extremely fast and agile - a superb pilot's aircraft.

The FCTU operated its first two Lightning F1s, XM164, and XM137 until June, 1966 when the unit was disbanded and the two aircraft were taken over by the newly-formed Binbrook TFF. Earlier, in March and April of 1966, Lightning F1s had also been issued to Wattisham and Leuchars, which aircraft constituted, in June 1966, two more newly-formed Target Facilities Flights.

All of these flights operated as autonomous units at their respective bases and had their own pilots, engineering officer and ground crew. As a result unit morale was always high and the flight developed their own distinctive markings.

The history of Binbrook TFF was somewhat checkered for in early 1971 the unit was absorbed by No.5 Squadron, and thus dispensed with its own markings to adopt those of the squadron. Later in September 1972 Binbrook TFF was reformed, and once again the unit adopted its own style of markings. Although the Wattisham TFF was in continuous existence from formation to disbandment, the Leuchars TFF was also incorporated into a first line squadron towards the end of its existence, this time No.23 Squadron. As a result, in 1972, the TFF aircraft adopted the red and blue bars and the distinctive red eagle of No.23 Squadron.

Although the Lightning F1 had been the initial equipment of the Target Facilities Flights, these were soon supplemented by

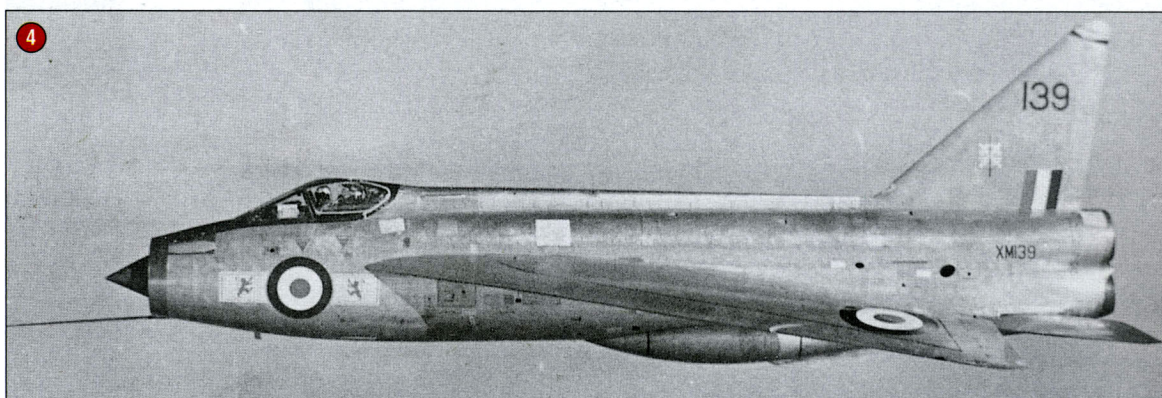
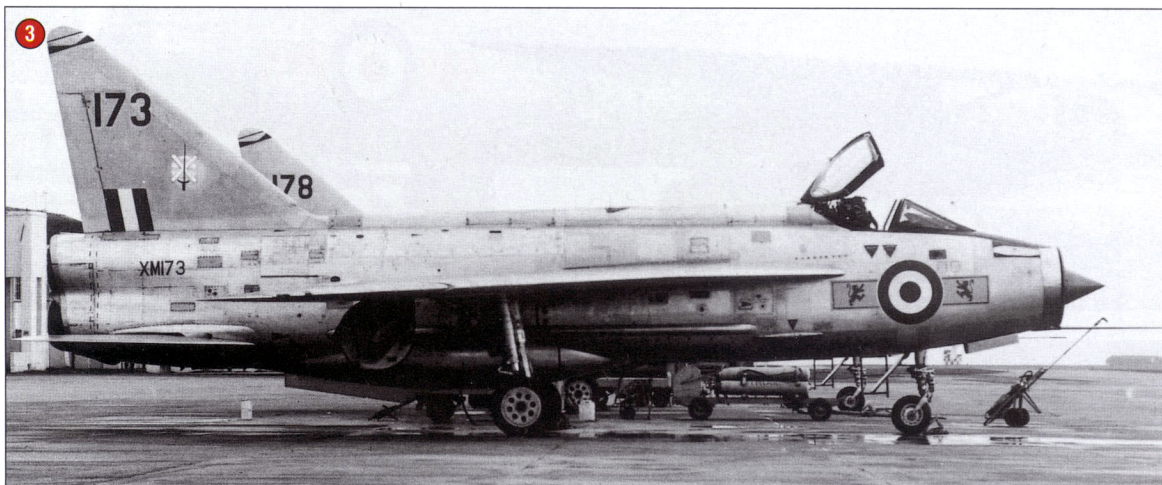
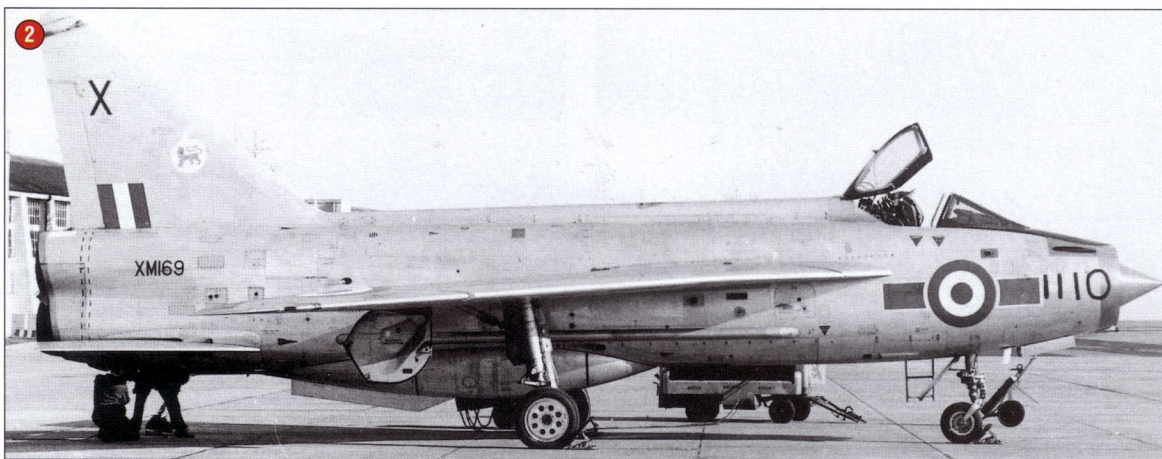


1. Binbrook TFF Lightning F.1a, XM181, seen taxiing out at Binbrook in Early 1973 (©D. Tuplin)

2. Binbrook TFF Lightning F.1a, XM169, with a crudely applied Paris show number '1110'

3. Leuchars TFF Lightning F.1as XM173 and XM178

4. Leuchars TFF F.1, XM139, in flight in August 1967



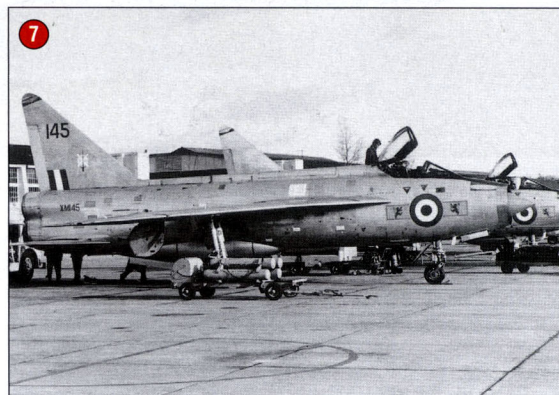
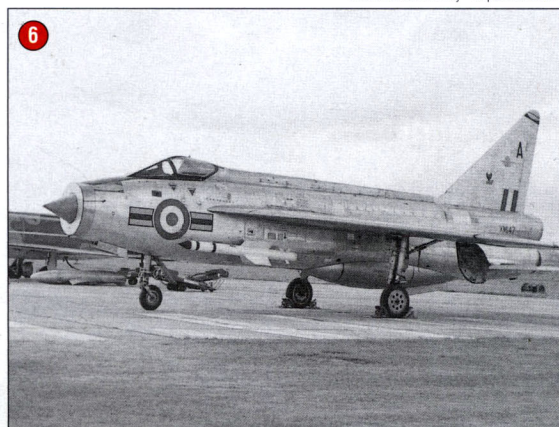
5. A close-up of the Binbrook lion badge on a Binbrook TFF F.1a. The original No.5 Squadron marking is evident around the TFF badge

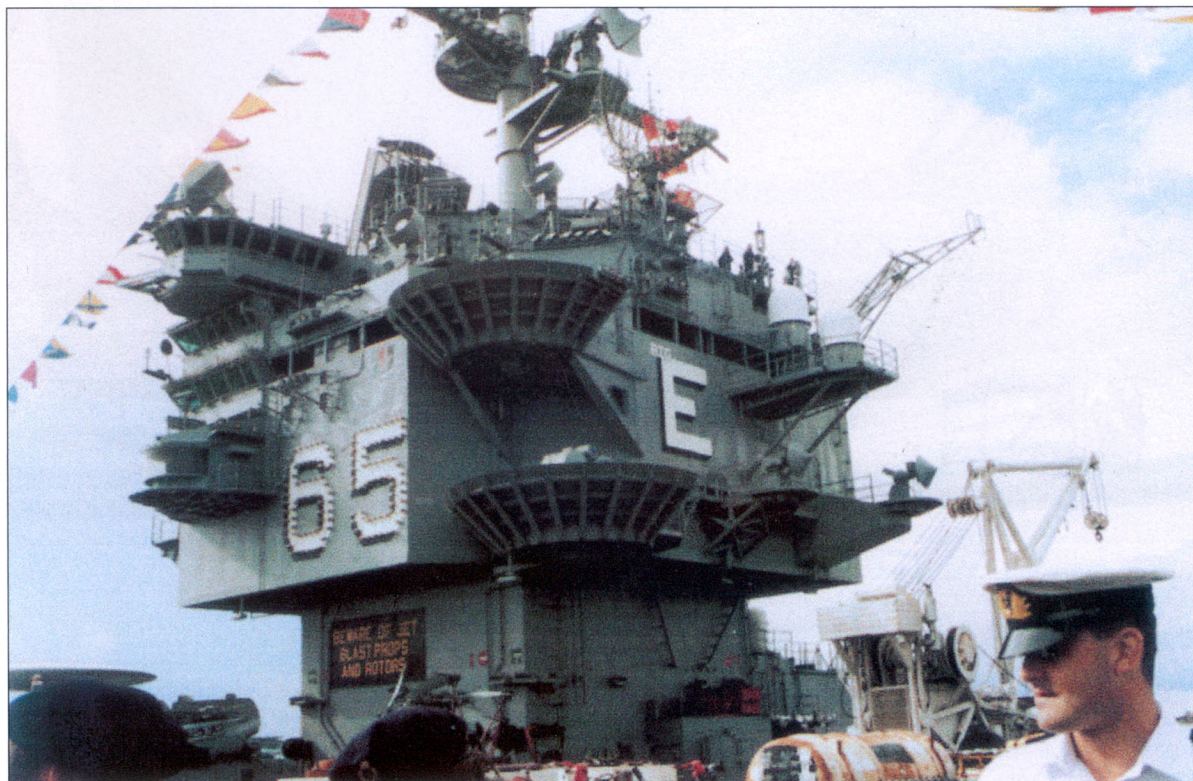
6. F.1 XM147 whilst coded 'A' with the Wattisham TFF. This aircraft was subsequently named 'Felix' and 'Korky'

7. Two Lightning F.1s (XM145 nearest) of the Leuchars TFF

8. Lightning F.1, XM135, of the Leuchars TFF at the Leuchars Battle of Britain Day in September 1969

9. Wattisham TFF Lightning F.1, XM139 wearing the 'supersonic cat' emblem. Note that the belly tank has been removed





A view of the massive superstructure

Photo Album

USS ENTERPRISE

by Gary Prettyman

On the 16th June 2001 half a dozen members of the Association of Naval Aviation (ANA) met at the jetty at HMS Victory, Portsmouth to await the arrival of a ferry that would take us aboard the nuclear-powered aircraft carrier USS Enterprise.

Once on board this massive (90,000 tons) ship we met Ensign Michael Mears, one of the maintenance personnel from VF-14. The tour started on the hangar deck then moved to the flight deck and, lastly, a trip around the superstructure. All in all it was a great afternoon. On board the Enterprise during our visit was Carrier Wing 8, which comprised the following aircraft:

- 1. F-14 Tomcat, VF-14 'Tophatters'
- 2. F-14 Tomcat, VF-41 'Black Aces'
- 3. F/A-18 Hornet, VFA-15 'Vallions'
- 4. F/A-18 hornet, VFA-87, Golden Hawks'
- 5. EA-6B Prowler, VAQ-141 'Shadowhawks'
- 6. S-3 Viking, VS-24 'Scouts'
- 7. S-60B Seahawks, HS-3 'Tridents'

Anyone interested in joining the ANA should contact the following address:

Association of Naval Aviation Inc
2550 Huntington Avenue,
Suite 201,
Alexandria,
Virginia 22303,
USA.

My thanks to the ANA for organising this trip, especially Rear Admiral (Retd) P.D. Smith, the President of the ANA. **MAM**



Tomcat, No. 102, waits for its next mission. Note the colour of the deck equipment, which is now white, not yellow

All photos © Peter Quinn



1. This is the Carrier Air Group Commander's (CAC) aircraft from VF-41 (Black Aces)

2. This view is from Vulture's Row, looking forward. Note the aircraft parked very tightly together

3. This Tomcat (No.212) parked on top of catapult No.3 is from VF-14 'Tophatters'



4. A 3/4 view of Tomcat No.201 of VF-14 'Tophatters'

5. The tail of this Tomcat bears the legend on top of its tail 'Last Tomcat Cruise'. After they return to the USA the F/A-18 Hornet will replace the F-14

6. This shot of F/A-18C '400' of VFA-87 'Golden Hawks' was taken on the hangar deck





7. Looking aft, of note is the large crane used to lift ship's supplies aboard

8. Detailed shot of the wing pylon of an F-14. These carry AIM-9 Sidewinders and AIM-7 Sparrow air-to-air missiles

9. Note the new radar structure on the front of this island. Also note the Primary Flight Control (Pri-Fly), the structure at the very top of the island and the camera area below the bridge windows, next to the ship's number '65'



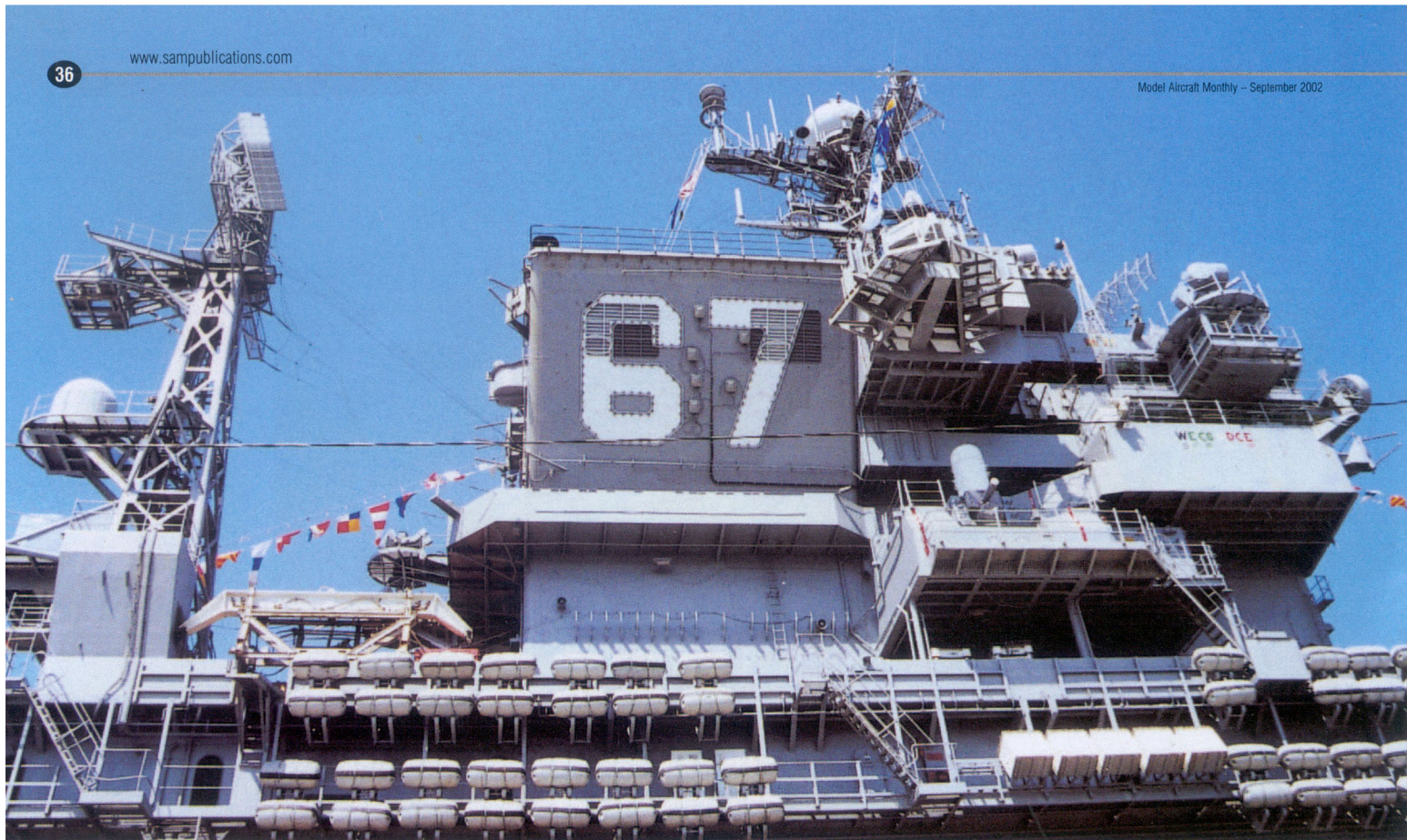


Photo Album

by Steven J. Corvi

This is the main island which houses the tower and control centre for the carrier

USS JOHN F. KENNEDY, CV 67 UNITED STATES NAVY. (TAKEN ONBOARD JULY 2000)

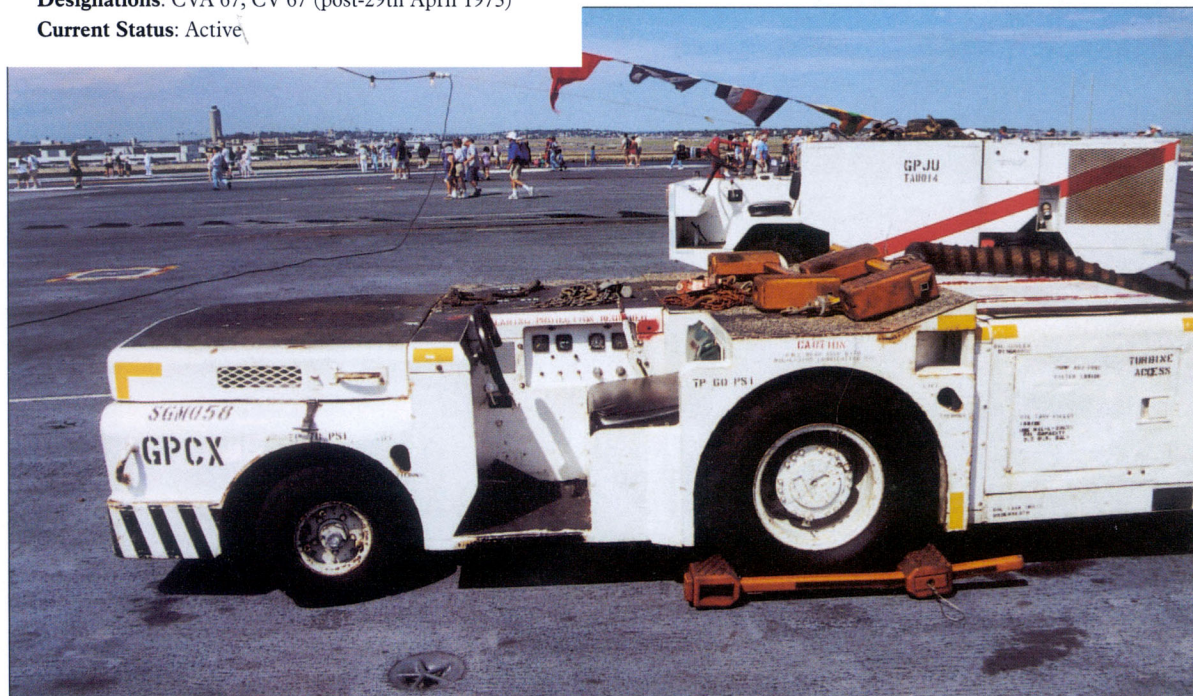
Carrier information:

Hull No. and Name: 67 John F. Kennedy

Date of Commission: 7th September 1968

Designations: CVA 67; CV 67 (post-29th April 1973)

Current Status: Active



This one is for the diorama builders out there. A close-up of the USN standard tow tractor on the main flight deck



1. The standard warning on most USN carriers

2. A close-up of the control tower and operations centre. Note the proximity to the flight deck and unrestricted view from its position

3. The tractor on page 36 – front view

4. Same tractor right-hand view

5. Another one for those USN Flight deck diorama scenes (especially if one has the Verlinden kit). This is the standard USN Fire tractor employed by the deck crew

6. A tied-down F-14 Tomcat

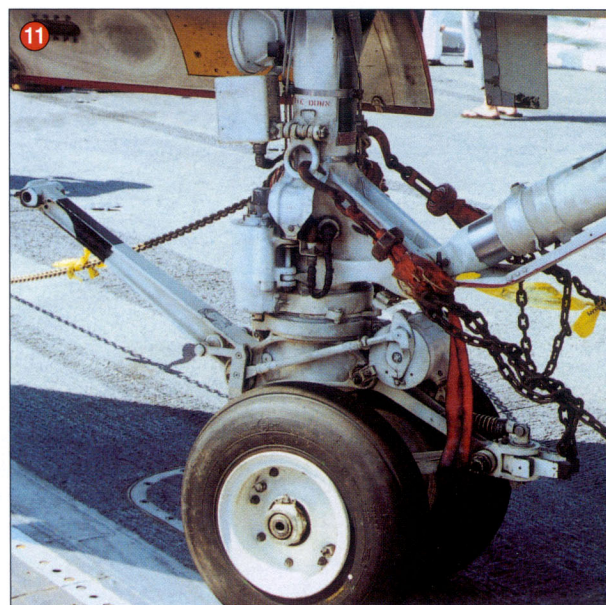
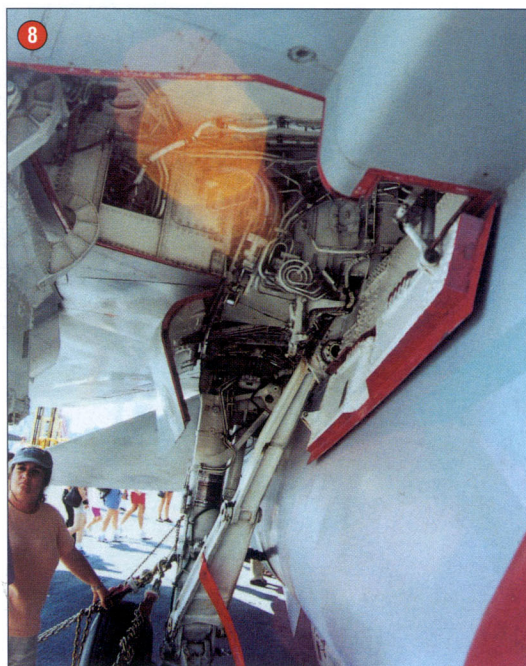
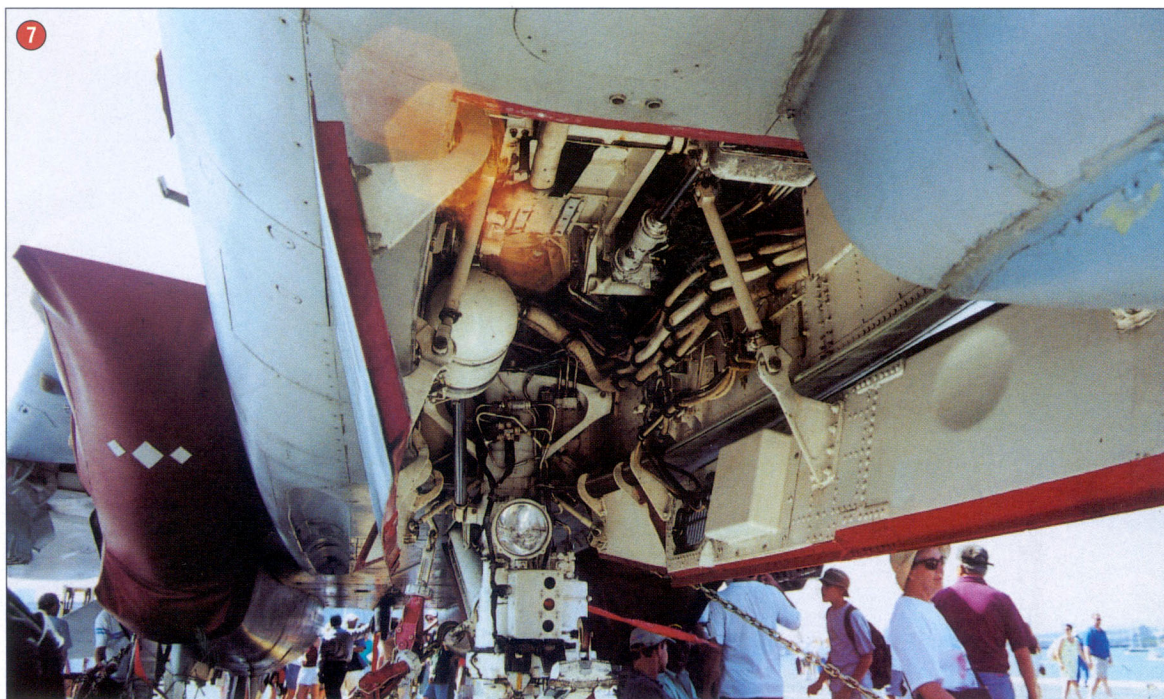
7. A look into the nose gear well of the F-14. What a mess of piping detail-Superdetailers heaven!

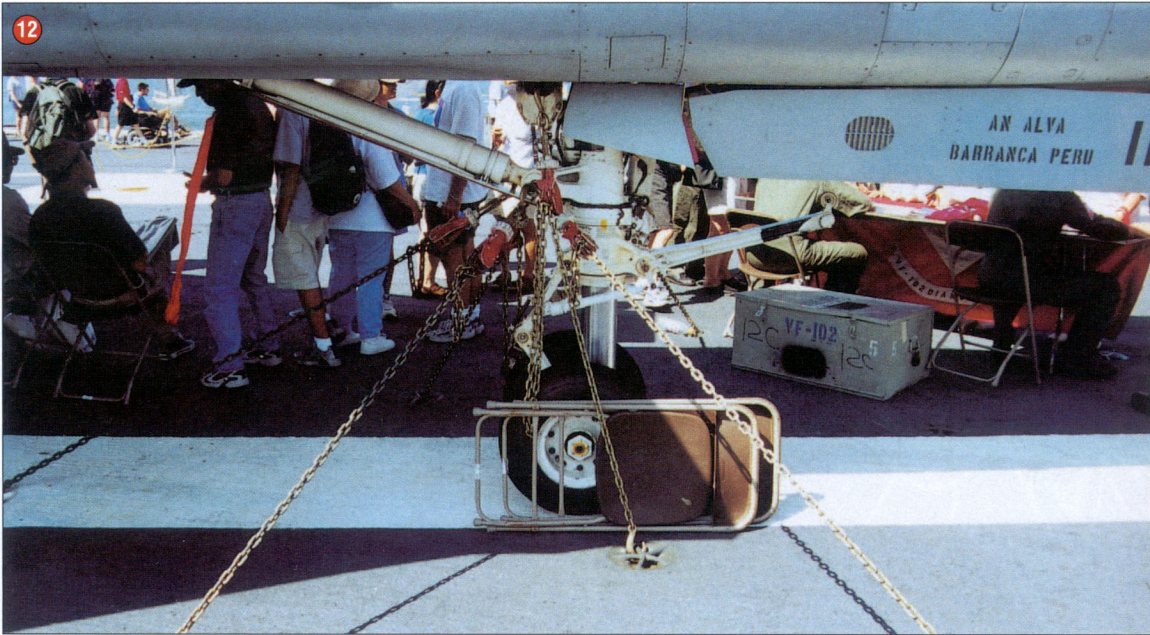
8. A view of the inside well of the main gear of the F-14 Tomcat

9. A close-up of the main gear on the F-14 Tomcat with the tie-downs and wheel chocks in place

10. The nose gear of the F/A-18 with tie-downs in place (minus the wheel chocks)

11. Close-up of nose gear of the F/A-18 with RBF (Remove Before Flight) tags and chains in place

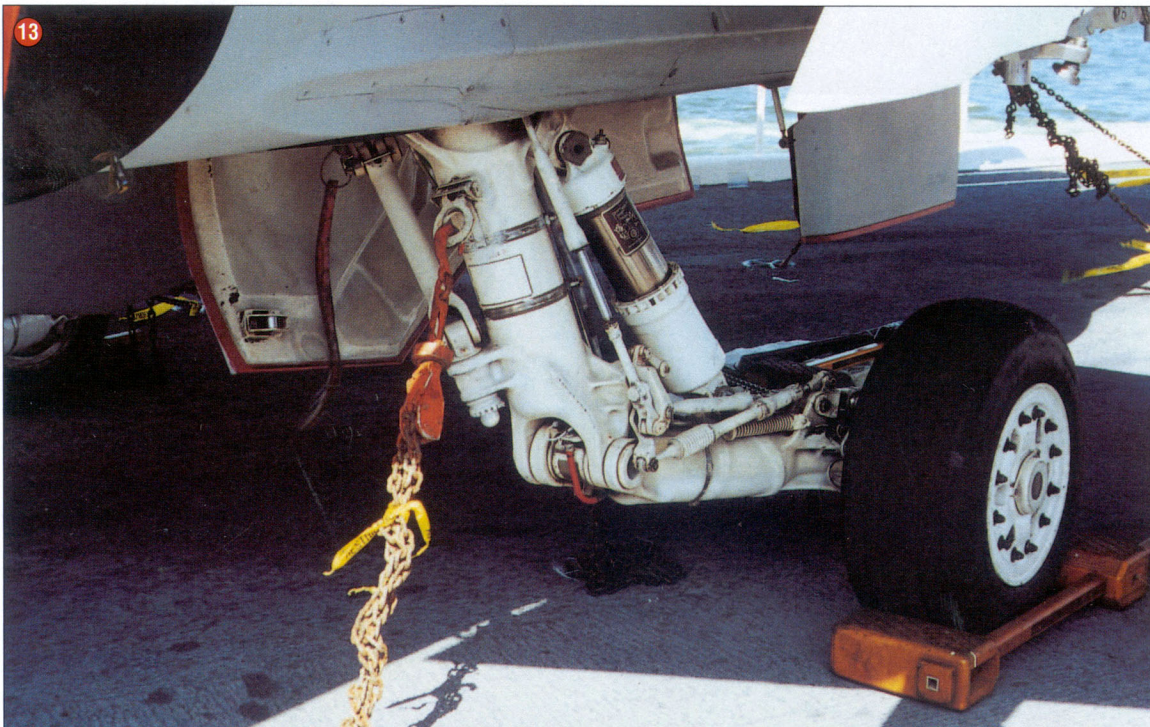




12. Same nose-gear with main deck tie-downs in view

13. F/A-18 main gear

14. A close-up of the main gear on the F/A-18 with wheel chocks and tie-downs in place





Close-up of the
starboard side of the
nose

Colourful Birds

SPECIAL SCHEMES NO.4

by W. Henderickx

The subject of this feature is the Lockheed C-130 'CH05' of the Belgian Air Force. A special scheme was applied to this machine in 1992 to celebrate the 20th anniversary of the type's use. This machine was operated by 12 Squadron, 15th Wing, based at Melsbroek. **MAM**

Overall shot of CH05





1. Here you can see the blue fuel tank with the '20 Years' legend

2. A closer look at the 'indian headband' applied to the nose of CH05

3. Useful shot of the inboard flaps slightly deployed

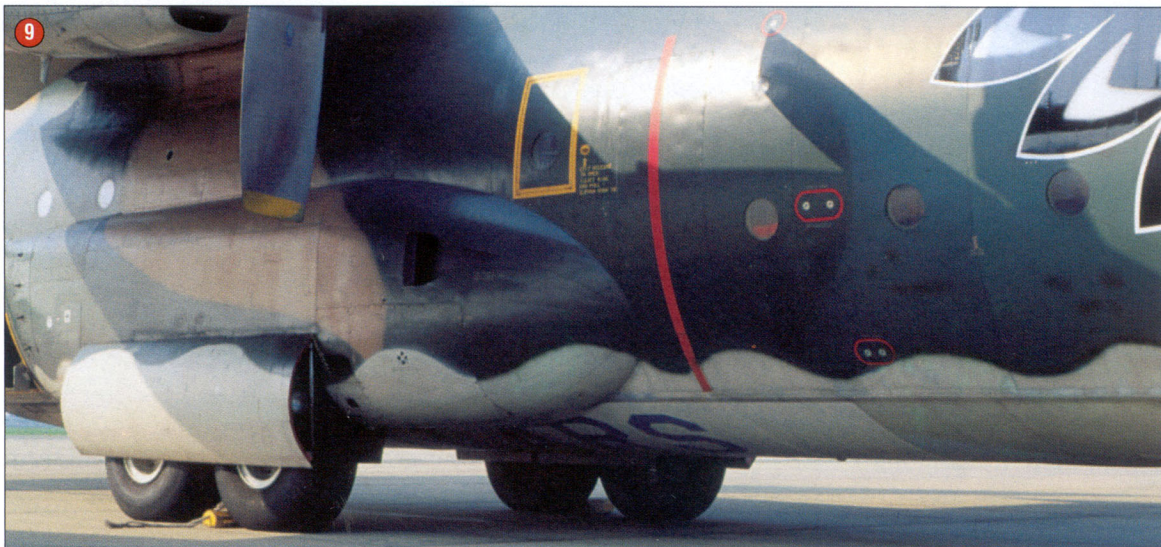
4. CH05 viewed from behind



6. Overall shot of the nose art

7. Crew access ladder on the port side





8. Another look at the fuel tank

9. & 10. Two views of the lower fuselage side, showing the camouflage demarcation etc

11. Overall view of the colourful vertical fin markings

12. Close-up of the aircraft serial on the nose

13. A look at the port side of the nose

Footnote

14. Another Belgium C-130 of interest. This is CH12 shown in a white scheme for 'Mercy Flights'; in 1991.





A6-436 Viscount 816 was accepted by the RAAF in the UK on October 1st, 1964. This aircraft was originally ordered by Trans Australian Airways but was re-allocated to the Iranian Government as EP-MRS and was operated by Iranian Airways before being purchased for the RAAF. Major maintenance was carried out by Ansett-ANA. Following its withdrawal from service on March 26th, 1969 it has carried a variety of registrations. N40NB, VH-EQQ (Jet Air Australia); 502 (Omani Air Force), G-BGLC and VP-WGS (Air Zimbabwe)

VIP Flight

by Jim Grant

Between March 17th, 1967 and February 8th, 1968 the Royal Australian Air Force enlarged and upgraded its VIP fleet with the delivery of two Hawker Siddeley HS-748s, two BAC 111s and three Dassault Mystere 20Cs. All of these aircraft were delivered to No.34 Squadron based at RAAF Fairbairn, the military airfield just outside Canberra, the home of Australia's federal politicians. These gradually replaced the Dakotas, Vickers Viscount 816s and Convair 440 Metropolitans then in service.

The acquisition of the Metropolitans had been somewhat convoluted. The Vickers Viscount was the preferred choice but these were not immediately available and the United States Airforce was willing to release two C-131s from an order that was already proceeding along the production line. Despite a shortage of US currency the Australian government accepted this offer and when complete the basic aircraft was fitted out with superior accommodation for between fifteen and eighteen passengers by a Convair subcontractor. The first aircraft was ferried to Australia by Squadron Leader D.V. Hahn.

The two Convair 440s, they were never referred to by their USAF designation, A96-313 and 356, were delivered to No. 86 (Transport) Wing late in 1956 and operated by the VIP Flight, and were a big improvement on the Douglas C-47s then in service. No.34 (Special) Squadron was formed from No.34 (VIP) Flight on May 1, 1959 and the aircraft were transferred to this new unit. With a cruising speed of 284mph (458 kph) and a 2015 mile (3244 km) range the 440 proved to be well suited to

Australia-wide operations including Royal Tours. Throughout their air force service major maintenance was carried out by Trans Australian Airways and de Havilland Australia. After being withdrawn from service they were stored at Hawker de Havilland before being put up for tender in April 1968. They acquired the United States registrations N588E and N733E and departed from Australia.

A26-073 (c/n 73, formerly F-WWFA and N452FJ) delivered on September 29th, 1989.
(© RAAF)

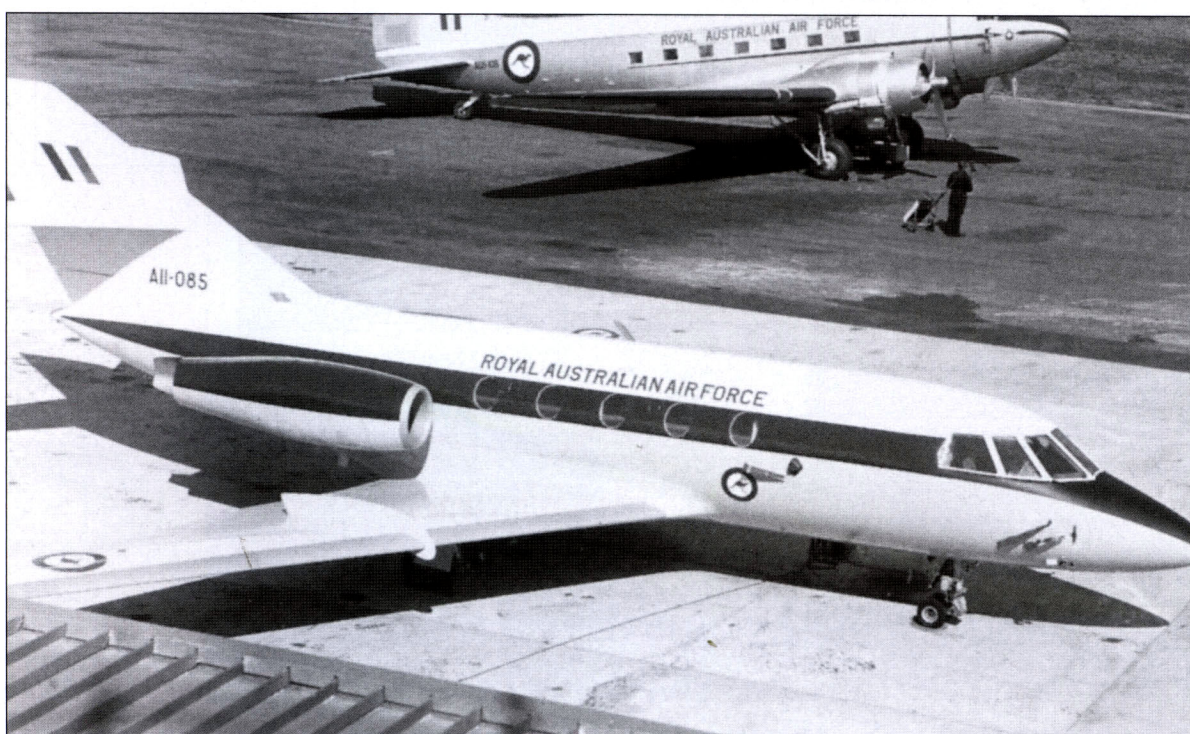




A96-313 The first Convair 440 delivered in 1956. This was put up for disposal on April 10th, 1968 and was sold in the United States as N588E
(© Aviation Heritage Museum of Western Australia)



A12-125 BAC 111 the second delivered, on February 8th, 1968 to No.34 Squadron by Squadron Leader Tunnidge, and allocated the radio call sign VM-NLH. This aircraft was replaced by a Dassault Falcon 900 and after being sold to Hawker Pacific was given the British registration G-KR00 and left Australia in March 1990
(© RAAF)



A11-078 Mystere 20C. (ex F-WNGM) delivered to No.34 Squadron on June 7th, 1967 by Squadron Leader Geoff Kilby. In December 1989 it passed to Hawker Pacific as VH-JSX and after a short time with Pel-Air was sold to Hunter Aviation in the USA as N6555C

(© RAAF)

A11-085 (ex F-WMKH) delivered August 4th, 1967. In December 1989 it passed to Hawker Pacific as VH-JSY and after a short time with Pel-Air was sold to Hunter Aviation in the USA as N6555L

(© RAAF)

Two Vickers Viscounts Type 816, A6-435 and 436 were also flown by the RAAF between 1964 and 1969 following the introduction of three new types.

The HS-748 Series 229s were allocated serial numbers A10-595 and 596 (these 'last three' serials being taken from the constructor's numbers) and delivered in April and May 1967 respectively to RAAF Fairbairn. Selected for their short field performance they were fitted out for eighteen VIPs. Both aircraft were accepted in the United Kingdom and flown out by RAAF crews.

With the formation of No.32 Squadron on July 1st, 1989 at East Sale these aircraft, and the eight HS-748 navigation trainers (A10-601 to 608) of the School of Air Navigation, were transferred to the new squadron where they remain in service.

Next to arrive were the three Mystere 20Cs. A11-078 was delivered on June 16th, 1967 with 085 and 090 following in

August. These eight-seaters were fast but short on range for Australia-wide operations and mostly operated in the Eastern half of Australia and Papua/New Guinea. However they still managed to accumulate a total of 30,000 flying hours between them. They were disposed of to Hawker Pacific in December 1989 and two were sold in the United States in 1990.

The last of this group of aircraft to be delivered were the two BAC 111s A1-124 and 125 arriving at the squadron on January 3rd and February 5th, 1968 respectively. The aircraft were flown out to Australia via Malta, Cyprus, Iran, Pakistan, India and Singapore. As the type in the VIP fleet with the longest range the BAC 111s frequently visited Papua New Guinea, South East Asia and New Zealand in addition to operating in continental Australia. In just short of twenty-one years' service these two aircraft flew 25,000 hours.

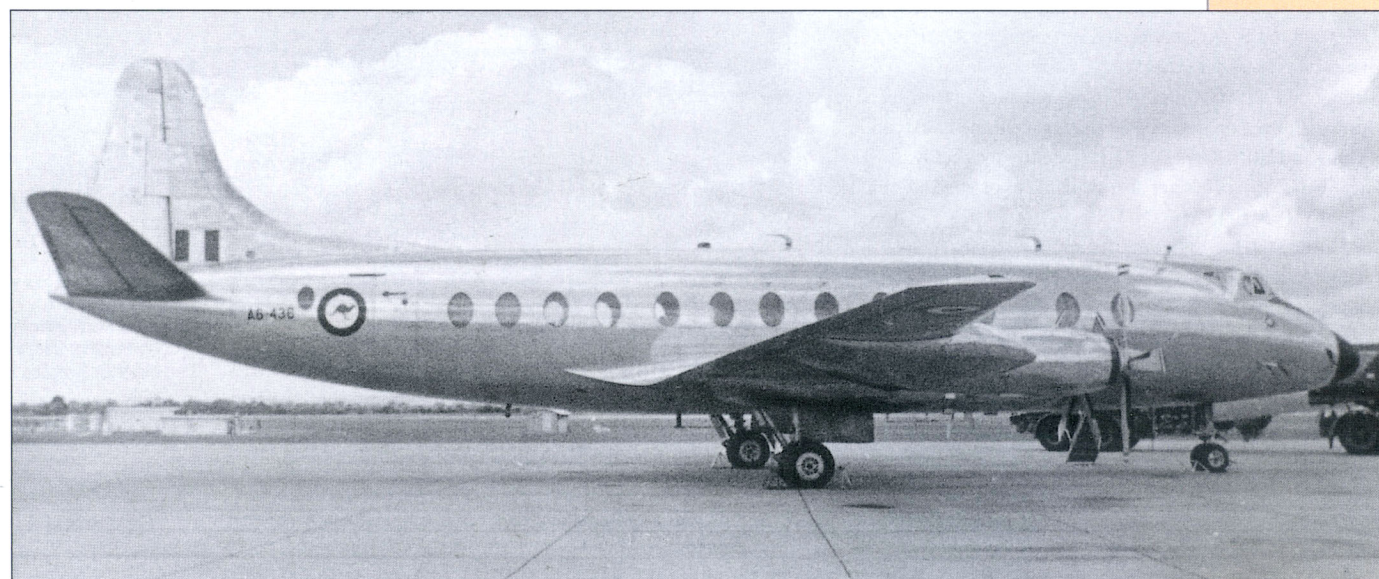
With the planned disposal of the BAC-111 and the Mystere



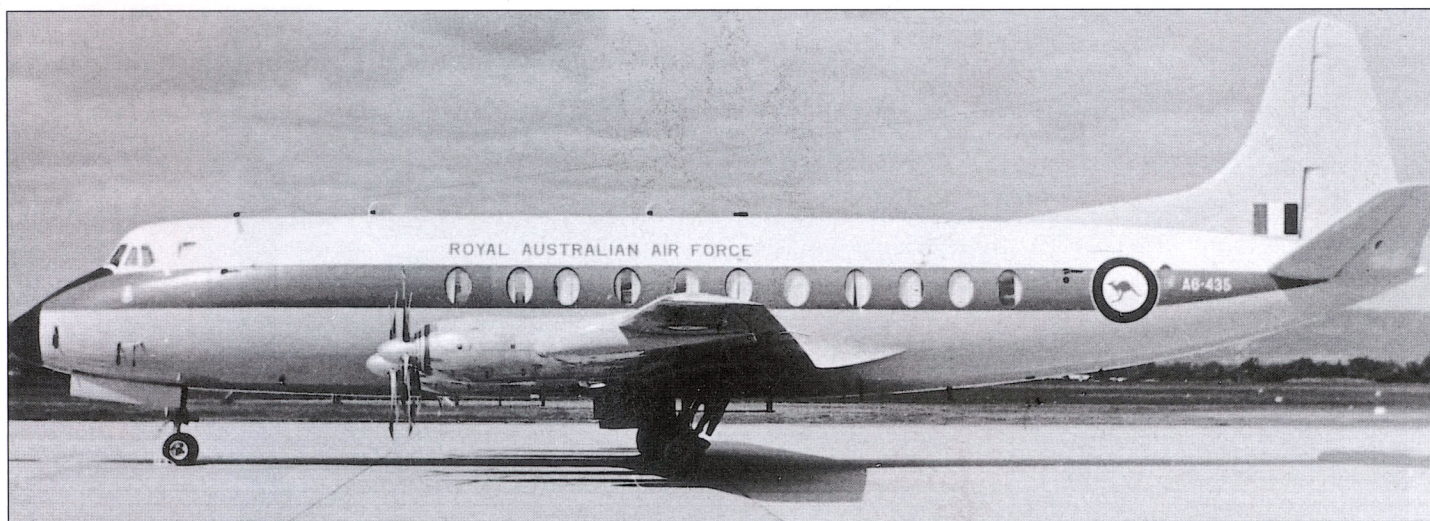
A11-090 (ex F-WNGL) delivered August 14th, 1967. In December 1989 it passed to Hawker Pacific as VH-JSZ and remained in Australia. The Sud Squirrel in the background is A22-022
(© RAAF)



Falcon 900 in the company of two RAAF F/A-18 Hornets



A9-436 as delivered in minimum of markings
(© Aviation Heritage Museum of Western Australia)



A6-435 in the final colour scheme
(© Aviation Heritage Museum of Western Australia)



Mystere 20, BAC 111 and Hawker Siddeley 748 in a nice line-up of the Squadron's fleet
(© RAAF)

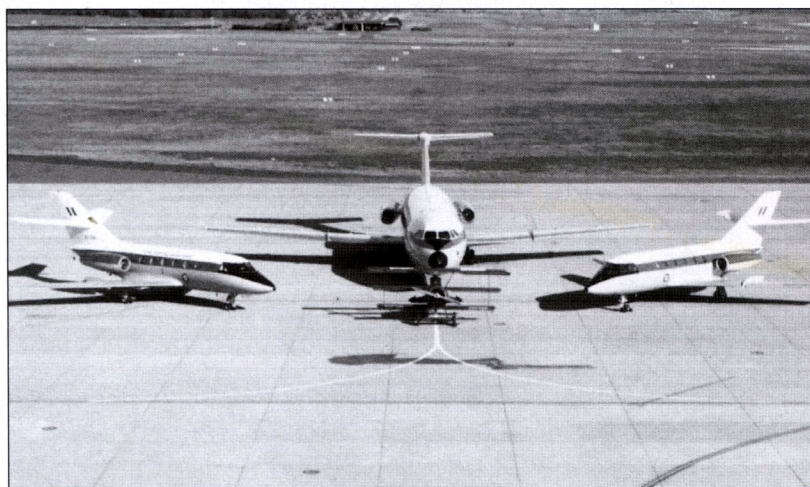
20, No.34 Squadron received five Dassault Falcon 900s leased from the Hawker Pacific Pty Ltd. They were flown from France to the USA for fitting out and the RAAF pilots and ground crew went to the USA to receive training at Flight Safety International prior to flying the completed aircraft to Australia. The first aircraft, A26-073, was handed over to the RAAF on September 21st, 1989 and the last in early December. The type officially entered RAAF service at a ceremony at RAAF Fairbairn on November 6th, 1989.

With a range of 5000 miles (8020km) and a maximum speed of 574 mph (930 kph) the Falcon 900s have served the RAAF, and politicians and VIP effortlessly and efficiently for over two decades. Two Boeing 707s are also available to provide a limited amount of VIP capacity.

The Falcon 900s are to be withdrawn from service in 2002 and it is proposed that they will be replaced by two Boeing 737 Business Jets and three Challenger 604s under a deal proposed by Qantas, but this has not yet been finalised.

No 34 Squadron History

The squadron was originally formed on February 23rd, 1942 and began operations with two de Havilland Dragons. Eventually it received a full complement of Douglas Dakotas and served throughout the South West Pacific area until it was disbanded in January 1946. No.2 Communication Squadron was renamed as No. 34 (Communications Squadron) on March 1st, 1948, but it was again disbanded in October 1955. Its present existence dates from



March 12th, 1956 when the RAAF VIP Flight at Fairbairn was renamed No.34 (VIP) Flight which was expanded to a full squadron on May 1st, 1959. The unit lost the 'VIP' from its title on June 12th, 1963. Since its inception it has operated Dakotas, Metropolitans, Viscounts, HS 748s, BAC 111, Dassault 50s and 900s.

The squadron was heavily involved in the year 2000 Royal visit. Previous highlights have been flights to the Maldives (1991) Rwanda (1994) and to Timor during the present operations there. The squadron has its own maintenance unit, No.34 Squadron Maintenance Flight. **MAM**

BAC 111 flanked by two Mystere 20s with a Fokker Dr.1 replica in front
(© RAAF)